Figure 1 Oligodeoxynucleotides Phosphorothioate and Site of Modification

Oligo No	Sequence & Modification	
8	5'-CCTACTAG <u>CG</u> TTCTCATC-3' (133-1)	
9	5'-CCTACTAGCXTTCTCATC-3' (139-2)	
10	5'-CCTACTAXCGTTCTCATC-3' (133-2)	~~0
11	5'-CCTACTXGCGTTCTCATC-3' (139-3)	Š
12	5'-CCTACXAGCGTTCTCATC-3' (133-3)	3()
13	5'-CCTAXTAGCGTTCTCATC-3' (139-4)	$X = {}^{3}$
14	5'-CCTXCTAGCGTTCTCATC-3' (133-4)	O S P.
15	5'-CCTXCTAG <u>CC</u> TTCTCATC-3' (145-10a)	0 7 0 SO
16	5'-CCTACTAGCGXTCTCATC-3' (133-5)	3 ,
17	5'-CCTACTAGCGTXCTCATC-3' (139-7)	1',2'-Dideoxyribose
18	5'-CCTACTAGCGTTXTCATC-3' (133-6)	
19	5'-CCTACTAGCGTTCXCATC-3' (139-8)	
20	5'-CCTXXTAGCGTTCTCATC-3' (133-12)	
21	5'-XXTACTAGCGTTCTCATC-3' (139-6)	
22	5'-CCTACTAGCGTTCXXATC-3' (139-9)	
23	5'-CCTXCTXGCGTTCTCATC-3' (145-10b)	

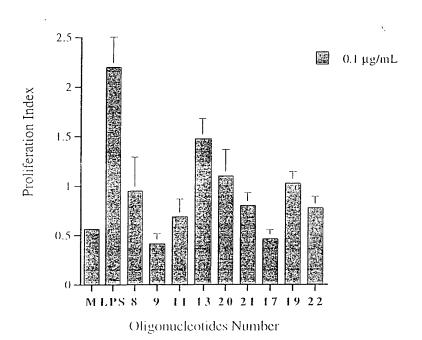


Figure 2 Oligodeoxynucleotides Phosphorothioate and Site of Modification

Oligo No.	Sequence & Modification	
8	5'-00':ACTAG <u>C</u> GTTCTCATC-3' (133-1)	
9	5'-CCTACTAGCXTTC+CATC-3' (139-2)	
10	5'-CCTACTAXCGTTCTCATC-3' (133-2)	~0
11	5'-CCTACTXGCGTTCTCATC-3' (139-3)	\ \o_\
12	5'-CCTACXAGCGTTCTCATC-3' (133-3)	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
13	5'-CCTAXTAGCGTTCTCATC-3' (139-4)	$X = {}^{3}$
14	5'-CCTXCTAGCGTTCTCATC-3' (133-4)	0=P\0
15	5'-CCTXCTAGCCTTCTCATC-3' (145-10a)	S ⁽ →
16	5'-CCTACTAGCGXTCTCATC-3' (133-5)	
17	5'-CCTACTAGCGTXCTCATC-3' (139-7)	1',2'-Dideoxyribose
18	5'-CCTACTAGCGTTXTCATC-3' (133-6)	
19	5'-CCTACTAGCGTTCXCATC-3' (139-8)	
20	5'-CCTXXTAGCGTTCTCATC-3' (133-12)	
21	5'-XXTACTAGCGTTCTCATC-3' (139-6)	
22	5'-CCTACTAGCGTTCXXATC-3' (139-9)	
23	5'-CCTXCTXGCGTTCTCATC-3' (145-10b)	

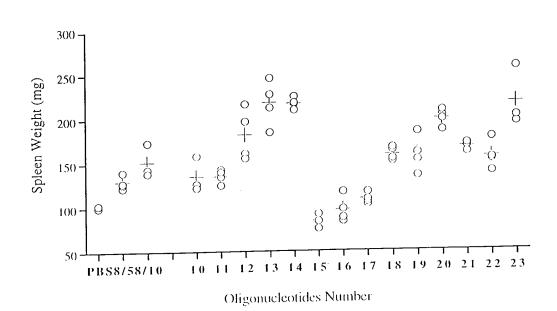


Figure 3 Oligodeoxynucleotides Phosphorothioate and Site of Modification

Oligo No.	Sequence & Modification	
1	5'-CTATCTGA <u>CG</u> TTCTCTGT-3' (131-1)	
2	5'-CTATCTGAXGTTCTCTGT-3' (131-13)	~0
3	5'-CTATCTGXCGTTCTCTGT-3' (131-2)	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
4	5'-CTATCXGACGTTCTCTGT-3' (131-3)	X = 3
5	5'-CTAXCTGACGTTCTCTGT-3' (131-4)	0
6	5'-CTATCTGACGXTCTCTGT-3' (131-5)	0 P 0
7	5'-CTATCTGACGTTXTCTGT-3' (131-6)	S ^O {
		1',2'-Dideoxyribos

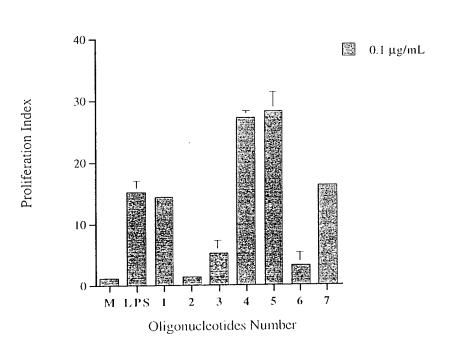


Figure 4 Oligodeoxynucleotides Phosphorothioate and Site of Modification

Oligo No.	Sequence & Modification	
1	5'-CTATCTGA <u>CG</u> TTCTCTGT-3' (131-1)	
2	5'-CTATCTGAXGTTCTCTGT-3' (131-13)	~0
3	5'-CTATCTGXCGTTCTCTGT-3' (131-2)	707
4	5'-CTATCXGACGTTCTCTGT-3' (131-3)	X = 3
5	5'-CTAXCTGACGTTCTCTGT-3' (131-4)	0-5
6	5'-CTATCTGACGXTCTCTGT-3' (131-5)	0=0
7	5'-CTATCTGACGTTXTCTGT-3' (131-6)	S ^O ¹
		1',2'-Dideoxyribose

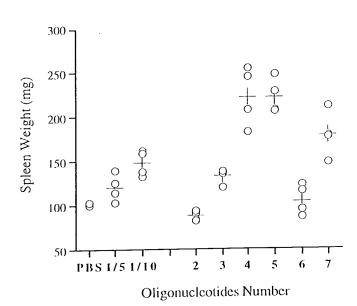


Figure 5 Oligodeoxynucleotide Phosphorothioates and Modification of Linkages

Oligo No.	Sequence & Modification	
133-1	5'-CCTACTAGCGTTCTCATC-3'	
141-2	5'-CCTACTAGCXTTCTCATC-3'	
141-3	5'-CCTACTXGCGTTCTCATC-3'	~~O
141-4	5'-CCTAXTAGCGTTCTCATC-3'	
141-5	5'-CCTXXTAGCGTTCTCATC-3'	V
141-6	5'-XXTACTAGCGTTCTCATC-3'	X = (
141-7	5'-CCTACTAGCGTXCTCATC-3'	ó
141-8	5'-CCTACTAGCGTTCXCATC-3'	0=p-0
141-9	5'-CCTACTAGCGTTCXXATC-3'	S [⊖] 1
		C3-Linker
131-1	5'-CTATCTGACGTTCTCTGT-3'	
137-2	5'-CTATCTGXCGTTCTCTGT-3'	
137-3	5'-CTATCXGACGTTCTCTGT-3'	
137-4	5'-CTAXCTGACGTTCTCTGT-3'	

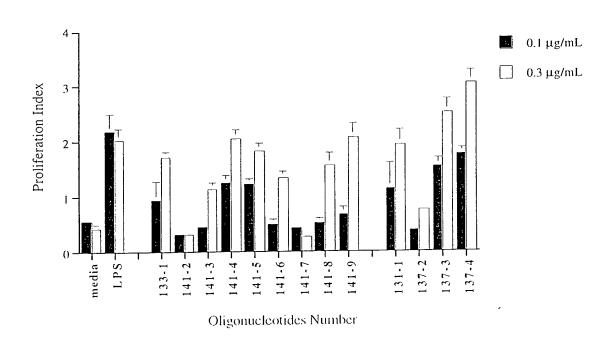


Figure 6 Oligodeoxynucleotide Phosphorothioates and Modification of Linkages

Oligo No.	Sequence & Modification	
	5'-CCTACTAGCGTTCTCATC-3'	
133-1		
141-2	5'-CCTACTAGCXTTCTCATC-3'	
141-3	5'-CCTACTXGCGTTCTCATC-3'	O
141-4	5'-CCTAXTAGCGTTCTCATC-3'	
141-5	5'-CCTXXTAGCGTTCTCATC-3'	X =
141-6	5'-XXTACTAGCGTTCTCATC-3'	\^ =
141-7	5'-CCTACTAGCGTXCTCATC-3'	, O
141-8	5'-CCTACTAGCGTTCXCATC-3'	0=P-0
141-9	5'-CCTACTAGCGTTCXXATC-3'	Š ^Θ ₹
		C3-Linker
131-1	5'-CTATCTGACGTTCTCTGT-3'	
137-2	5'-CTATCTG X CGTTCTCTGT-3'	
137-3	5'-CTATCXGACGTTCTCTGT-3'	
137-4	5'-CTAXCTGACGTTCTCTGT-3'	

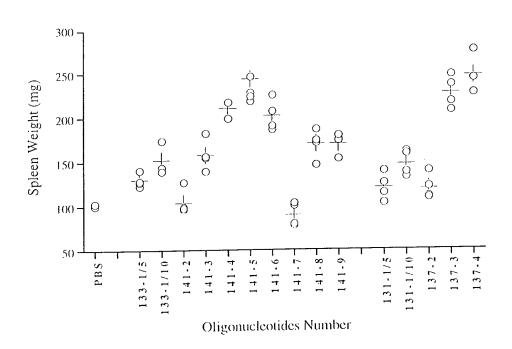
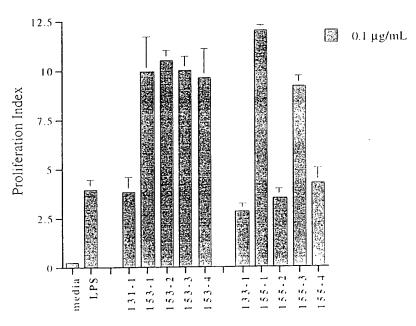


Figure 7 Oligodeoxynucleotides Phosphorothioate and Site of Modification

Oligo No.	Sequence & Modification
1	5'-CTATCTGA <u>CG</u> TTCTCTGT-3' (131-1)
2	5'-CTAXCTGACGTTCTCTGT-3' (153-1)
3	5'-CTATCTGACGTTCXCTGT-3' (153-2)
4	5'-CTAYCTGACGTTCTCTGT-3' (153-3)
5	5'-CTATCTGACGTTCYCTGT-3' (153-4)
6	5'-CCTACTAGCGTTCTCATC-3' (133-1)
7	5'-CCTXCTAGCGTTCTCATC-3' (155-1)
8	5'-CCTACTAGCGTTCXCATC-3' (155-2)
9	5'-CCTYCTAGCGTTCTCATC-3' (155-3)
10	5'-CCTACTAGCGTTCYCATC-3' (155-4)
X = \\((
Y = ,,r ^C Spacer18	



Oligonucleotides Number

Figure 8 Oligodeoxynucleotides Phosphorothioate and Site of Modification

 Oligo No.	Sequence & Modification
1	5'-CTATCTGA <u>CG</u> TTCTCTGT-3' (131-1)
2	5'-CTAXCTGACGTTCTCTGT-3' (153-1)
3	5'-CTATCTGACGTTCXCTGT-3' (153-2)
4	5'-CTAYCTGACGTTCTCTGT-3' (153-3)
5	5'-CTATCTGACGTTC Y CTGT-3' (153-4)
6	5'-CCTACTAGCGTTCTCATC-3' (133-1)
7	5'-CCTXCTAGCGTTCTCATC-3' (155-1)
8	5'-CCTACTAGCGTTCXCATC-3' (155-2)
9	5'-CCTYCTAGCGTTCTCATC-3' (155-3)
10	5'-CCTACTAGCGTTCYCATC-3' (155-4)
X = \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
Y = r^{r} Spacer18	

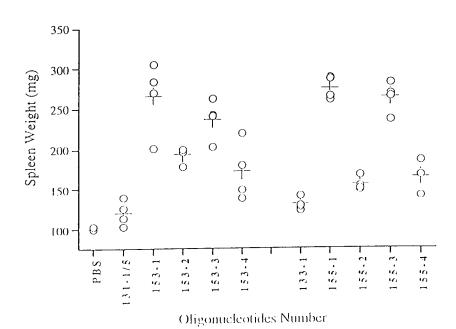
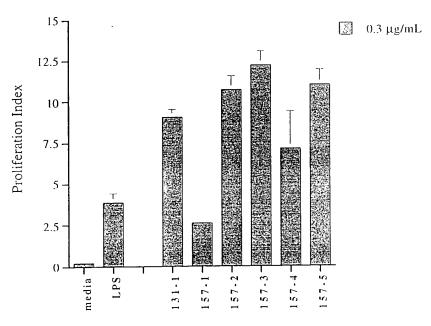


Figure 9 Oligodeoxynucleotides Phosphorothioate and Site of Modification

Oligo No.	Sequence & Modification	
1	5'-CTATCTGACGTTCTCTGT-3' (131-1)	
2	5'-CTATCTGXCGTTCTCTGT-3' (157-1)	
3	5'-CTATCTXACGTTCTCTGT-3' (157-2)	
4	5'-CTAXCTGACGTTCTCTGT-3' (157-3)	
5	5'-CTATCTGACGTXCTCTGT-3' (157-4)	
6	5'-CTATCTGACGTTCXCTGT-3' (157-5)	

$$X = \begin{pmatrix} & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & \\ & & & \\ &$$



Oligonucleotides Number

Figure 10 Oligodeoxynucleotides Phosphorothioate and Site of Modification

Oligo No.	Sequence & Modification
	5'-CTATCTGACGTTCTCTGT-3' (131-1)
2	5'-CTATCTGXCGTTCTCTGT-3' (157-1)
3	5'-CTATCTXACGTTCTCTGT-3' (157-2)
4	5'-CTAXCTGACGTTCTCTGT-3' (157-3)
5	5'-CTATCTGACGTXCTCTGT-3' (157-4)
6	5'-CTATCTGACGTTCXCTGT-3' (157-5)

$$X = \begin{pmatrix} & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ &$$

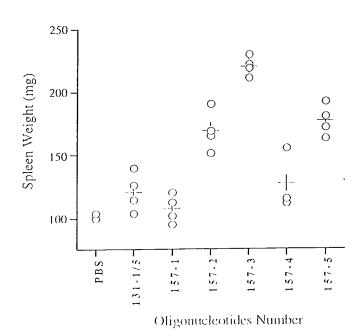


Figure 11 Oligodeoxynucléotide Phosphorothioates and Modification of Linkages

Oligo No.	Sequence & Modification	
131-1	5'-CTATCTGACGTTCTCTGT-3'	
159-1	5'-CTATCTGACXTTCTCTGT-3'	~~0
159-2	5'-CTATCTGAXGTTCTCTGT-3'	X = 5'
159-3	5'-CTATXTGACGTTCTCTGT-3'	
159-4	5'-CTATCTGACGTTCTXTGT-3'	0 - 0 - 0
133-1	5'-CCTACTAGCGTTCTCATC-3'	S ^O 15' O B
161-1	5'-CCTACTAGCXTTCTCATC-3'	3')—' O _m
161-2	5'-CCTACTAGXGTTCTCATC-3'	3'-Deoxynucleoside
161-3	5'-CCTACTAXCGTTCTCATC-3'	·
161-4	5'-CCTAXTAGCGTTCTCATC-3'	
161-5	5'-CCTACTAGCGTTCTXATC-3'	

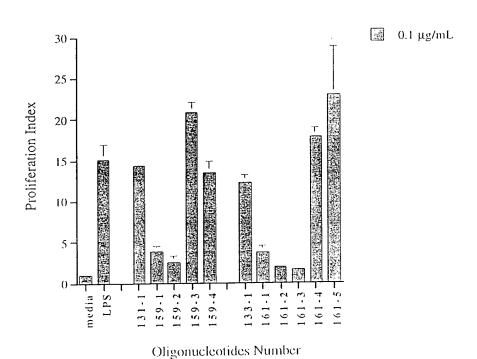


Figure 12 Oligodeoxynucleotide Phosphorothioates and Modification of Linkages

Oligo No.	Sequence & Modification	
131-1	5'-CTATCTGACGTTCTCTGT-3'	
159-1	5'-CTATCTGACXTTCTCTGT-3'	~0 v 51 0 B
159-2	5'-CTATCTGAXGTTCTCTGT-3'	X = 5'
159-3	5'-CTATXTGACGTTCTCTGT-3'	
159-4	5'-CTATCTGACGTTCTXTGT-3'	0=P-0
133-1	5'-CCTACTAGCGTTCTCATC-3'	Ś [⊙] (5' O B
161-1	5'-CCTACTAGCXTTCTCATC-3'	0,
161-2	5'-CCTACTAGXGTTCTCATC-3'	3'-Deoxynucleoside
161-3	5'-CCTACTAXCGTTCTCATC-3'	
161-4	5'-CCTAXTAGCGTTCTCATC-3'	
161-5	5'-CCTACTAGCGTTCTXATC-3'	

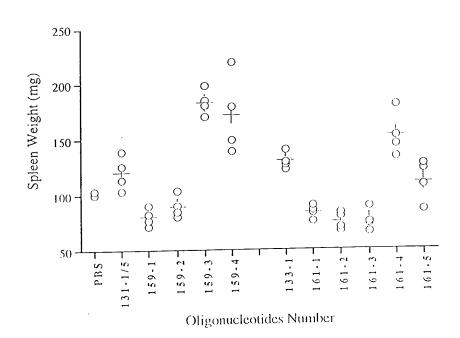


Figure 13 Oligodeoxynucleotide Phosphorothioates and Modification of Linkages

Oligo No.	Sequence & Modification	
131-1	5'-CTATCTGACGTTCTCTGT-3'	
167-1	5'-CTATCTGXCGTTCTCTGT-3'	~_O
167-2	5'-CTATCTXACGTTCTCTGT-3'	$X = 5' \bigcirc B$
167-3	5'-CTATCXGACGTTCTCTGT-3'	3'
167-4	5'-CTATXTGACGTTCTCTGT-3'	, O = P \ O
167-5	5'-CTAXCTGACGTTCTCTGT-3'	H ₃ C _{
167-6	5'-CTXXCTGACGTTCTCTGT-3'	Methyl-phosphonate
167-7	5'-CTATCTGACGXTCTCTGT-3'	
167-8	5'-CTATCTGACGTXCTCTGT-3'	
167-9	5'-CTATCTGACGTTXTCTGT-3'	
167-10	5'-CTATCTGACGTTCXCTGT-3'	
16711	5'-CTATCTGACGTTCTXTGT-3'	
167-12	5'-CTATCTGACGTTCTXXGT-3'	

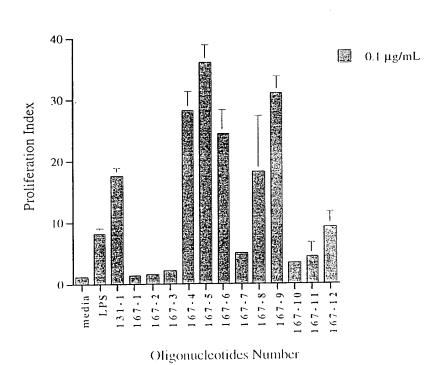
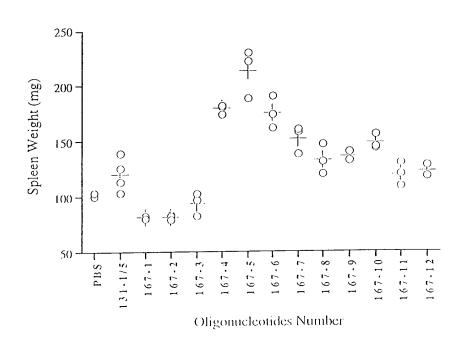


Figure 14 Oligodeoxynucleotide Phosphorothioates and Modification of Linkages

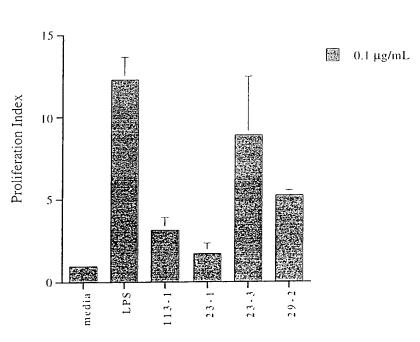
Oligo No.	Sequence & Modification	
131-1 167-1	5'-CTATCTGACGTTCTCTGT-3' 5'-CTATCTGXCGTTCTCTGT-3'	~O v 51 O B
167-2 167-3	5'-CTATCTXACGTTCTCTGT-3' 5'-CTATCXGACGTTCTCTGT-3'	$\mathbf{X} = \begin{array}{c} 3 \\ 2 \end{array}$
167-4 167-5	5'-CTATXTGACGTTCTCTGT-3' 5'-CTAXCTGACGTTCTCTGT-3'	O ^{É.P} O H ₃ C
167-6 167-7	5'-CTXXCTGACGTTCTCTGT-3' 5'-CTATCTGACGXTCTCTGT-3'	wetryr-priospriorate
167-8 167-9	5'-CTATCTGACGTXCTCTGT-3' 5'-CTATCTGACGTTXTCTGT-3'	
167-10 16711	5'-CTATCTGACGTTC X CTGT-3' 5'-CTATCTGACGTTCT X TGT-3'	
167-12	5'-CTATCTGACGTTCTXXGT-3'	



Oligodeoxynucleotide Phosphorothioates and Modification of Linkages Figure 15

Oligo No.	Sequence & Modification	
113-1	5'-TCCATGACGTTCCTGATGC-3'	~~ O
23-1	5'-TCCATGXCGTTCCTGATGC-3'	5' O B
23-3	5'-TCCAXGACGTTCCTGATGC-3'	3' OR
29-2	5'-TYYATGACGGTCCTGATGC-3'	0=P-0 S 1

 $R_X = 2$ '-O-Methylribonucleoside Ry = 2'-O-Methoxyethylribonucleoside



Oligonucleotides Number

Figure 16 Oligodeoxynucleotide Phosphorothioates and Modification of Linkages

Oligo No.	Sequence & Modification	
113-1	5'-TCCATGACGTTCCTGATGC-3'	~_O
23-1	5'-TCCATGXCGTTCCTGATGC-3'	5' O B
23-3	5'-TCCAXGACGTTCCTGATGC-3'	3' COR
29-2	. 5'-TYYATGACGGTCCTGATGC-3'	0=10

 $R_X = 2$ '-O-Methylribonucleoside Ry = 2'-O-Methoxyethylribonucleoside

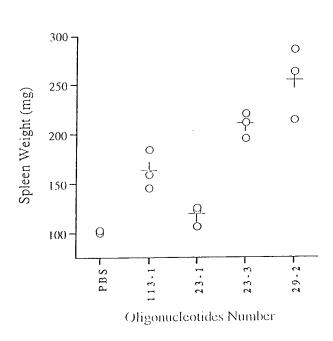


Figure 17 Oligodeoxynucleotide Phosphorothioates and Modification of Linkages

Oligo No.	Sequence & Modification
1	5'-GAGAACGCTCGACCTT-3'
2	5'-GAGAACGCTCGACCTT-3'
3	3'-TTCCAGCTCGCAAGAG-5'5'-GAGAA <u>CG</u> CT <u>CG</u> ACCTT-3'
4	5'-GAGAACGCTCGACCTT-3' 3'-TTCCAGCTCGCAAGAG-5'
5	5'-TCTCCCAG <u>CG</u> TG <u>CG</u> CCAT-3'
6	5'-T C C C A G C G T G C G C C A T-3' 5'-T C C C A G C G T G C G C C A T-3'
7	3'-TACCGCGTGCGACCCT-5' 5'-TCCCAGCGTGCGCCAT-3'
8	5'-T C C C A G C G T G C G C C A T-3' 3'-T A C C G C G T G C G A C C C T-5'
	0 5' — 3' 0 B 0 5' — 5' 0 O

→ 5'-3'- direction of CpG motif

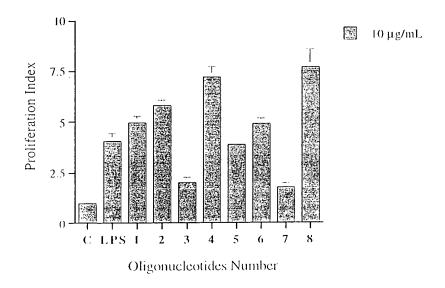


Figure 18 Oligodeoxynucleotide Phosphorothioates and Modification of Linkages

Oligo No.	Sequence & Modification	
131-1	5'-CTATCTGACGTTCTCTGT-3'	
175-1	5'-CTATXTGACGTTCTCTGT-3'	0"
175-2	5'-CTATCTGACGTTCXCTGT-3'	$X = {}^{B} \setminus {}^{O} \setminus$
175-3	5'-CTAXXTGACGTTCTCTGT-3'	
175-4	5'-CTATCTGACGTTCXXTGT-3'	0=P-0
175-5	5'-CTATCTGAXXTTCTCTGT-3'	S [⊖] (5', 0 > E
175-6	5'-CTATCTXACGTTCTCTGT-3'	β-L-Deoxynucleoside 3')—/
175-7	5'-CTATCTGACGTXCTCTGT-3'	~ ~.
175-9	5'-CTATCTGACGTTCTCTGT-3' (all-β	-L-DNA/PS)

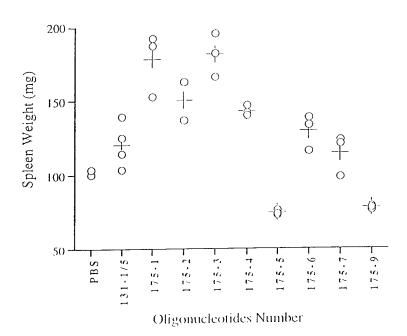


Figure 19 Oligodeoxynucleotide Phosphorothioates and Modification of Linkages

Oligo No.	Sequence & Modification	
		~~O
131-1	5'-CTATCTGACGTTCTCTGT-3'	$X = 5' Y^O Y^B$
173-1	5'-CTATXTGACGTTCTCTGT-3'	3'\
173-2	5'-CTATCTGACGTTCTXTGT-3'	OSP-OCCH
		2'-O-Propargyl-ribonucleoside

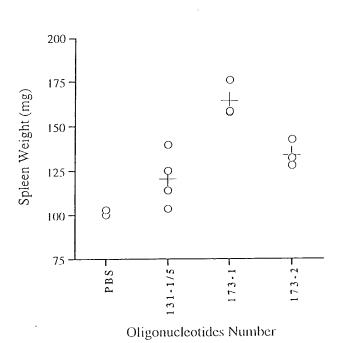


Figure 20 Oligodeoxynucleotide Phosphorothioates and Modification of Linkages

ACTAGCGTTCTCATC-3'
XXTAGCGTTCTCATC-3'
YYTAGCGTTCTCATC-3'
ZZTAGCGTTCTCATC-3'
XXTAGCGTVCTCATC-3'
-ACTAG <u>GC</u> TTCTCATC-3'
T

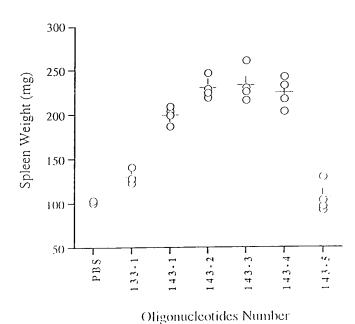


Figure 21 Oligodeoxynucleotide Phosphorothioates and Site of Modification

	Oligo No.	Sequence & Modification
	1 5'-(CTATCTGA <u>CG</u> TTCTCTGT-3' (131-1)
		CTATCTGA <u>CG*</u> TTCTCTGT-3' (E 633L)
	3 5'-0	CTATCTGA <u>G*C</u> TTCTCTGT-3' (E 636)
		TCTCCCAG <u>CG</u> TG <u>CG</u> CCAT-3'
		TCTCCCAG <u>CG*</u> TG <u>CG*</u> CCAT-3' (E 603)
		CTATXTGA <u>CG*</u> TTCTCTGT-3' (E 639L)
	O NH N N N	NH ₂ O O O O O O O O O O O O O O O O O O O
1	G* = 7-deazagua	anine $X = C3$ - Linker

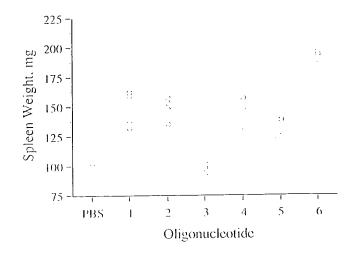


Figure 22 Oligodeoxynucleotide Phosphorothioates and Site of Modification

Oligo No.	Sequence & Modification	
1 2 3	5'-CTATCTGA <u>CG</u> TTCTCTGT-3' (131-1) 5'-CTATCTGA <u>CG*</u> TTCTCTGT-3' (E 682) 5'-CTATCTGA <u>G*C</u> TTCTCTGT-3' (E 683)	N N N N N N N N N N

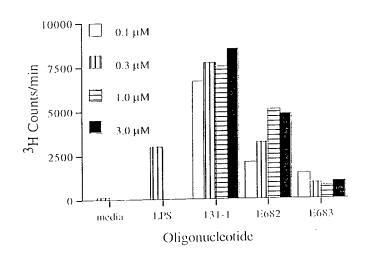


Figure 23 Oligodeoxynucleotide Phosphorothioates and Site of Modification

Oligo No.	Sequence & Modification		
1	5'-CTATCTGA <u>CG</u> TTCTCTGT-3'	NH ₂	NH-CH ₂ -CH ₃
2	5'-CTATCTGA <u>C*G</u> TTCTCTGT-3'	HON	N
3	5'-CTATCTGA <u>CC*</u> TTCTCTGT-3'	NO	N
4	5'-CTATCTGA <u>C**G</u> TTCTCTGT-3'	dR	dR
5	5'-CTATCTGA <u>CC**</u> TTCTCTGT-3'	C* = 5-hydroxy-cytosine (Jan = N4-ethyl-cytosine

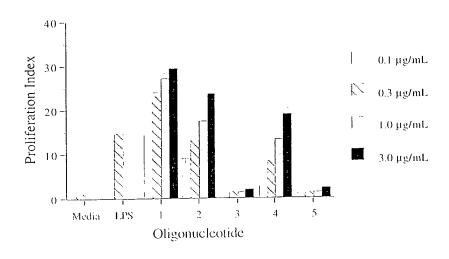


Figure 24 Oligodeoxynucleotide Phosphorothioates and Site of Modification

Oligo No.	Sequence & Modification		
1	5'-CTATCTGA <u>CG</u> TTCTCTGT-3'	NH ₂	NH-CH ₂ -CH ₃
2	5'-CTATCTGA <u>C*G</u> TTCTCTGT-3'	HON	N
3	5'-CTATCTGACC*TTCTCTGT-3'	NO	N
4	5'-CTATCTGA <u>C**G</u> TTCTCTGT-3'	dR C* = 5-hydroxy-cytosine C	dR
5	5'-CTATCTGACC**TTCTCTGT-3'	C = 5-flydroxy-cytosine C	

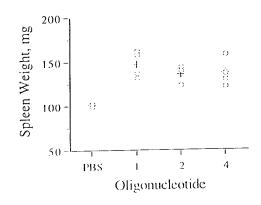


Figure 25 Oligodeoxynucleotide Phosphorothioates and Site of Modification

	Figure	23 Oligodeoxyridologido i inospira
_	Oligo No.	Sequence & Modification
Mary IIII	1 2 3	5'-CTATCTGACGTTCTCTGT-3' 5'-CTATCTGAC*GTTCTCTGT-3' 5'-CTATCTGACC*TTCTCTGT-3' $C^* = Ara-C$
		10000 O.1 uM O.3

LPS

Oligonucleotide

media

E710

E709

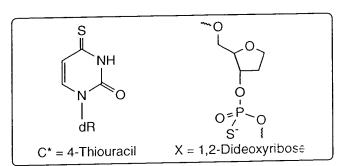
Oligo No.	Sequence & Modification
Oligo Ivo.	Coquerios a missimis

- 1 5'-CTATCTGA<u>CG</u>TTCTCTGT-3' (131-1)
- 2 5'-CTATCTGA<u>C*G</u>TTCTCTGT-3' (E 647)
- 3 5'-CTATXTGA<u>C*G</u>TTCTCTGT-3' (E 653)

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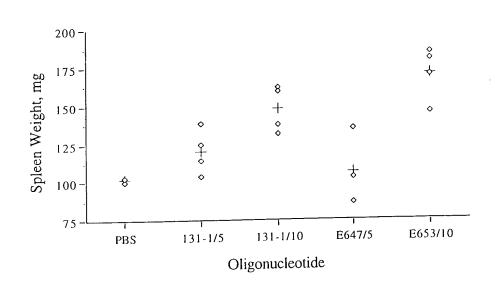


Figure 27

Figure 28